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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,730	07/05/2006	David J. Kyle	026086.079-32US	1381
24239 7590 11/19/2010 MOORE & VAN ALLEN PLLC P.O. BOX 13706 Research Triangle Park, NC 27709			EXAMINER SAYALA, CHHAYA D	
			ART UNIT 1781	PAPER NUMBER
			MAIL DATE 11/19/2010	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/549,730	<b>Applicant(s)</b> KYLE ET AL.	
	<b>Examiner</b> C. SAYALA	<b>Art Unit</b> 1781	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 8/24/2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 81-113 is/are pending in the application.
- 4a) Of the above claim(s) 114 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 81-113 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/20/09; 9/9/08; 9/9/08</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

Applicant's election without traverse of Group I, claims 81-113 in the reply filed on 8/24/2010 is acknowledged.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 81-84, 89-90, 95 are rejected under 35 U.S.C. 102(b) as being anticipated by Kyle et al. (US Patent 5397591).

Kyle et al. disclose a biomass of *C. cohnii* that contains 30-40% DHA being used for aquaculture such as fish. By using the biomass aquaculturally for fish, Kyle et al. has produced an "aquaculturally-raised" fish or shrimp or oyster, as claimed, and meets claim 81. See col. 6, lines 35-38. By disclosing such a high level of DHA claims 82-84 have been met.

2. Claims 81-90, 92-93, 95, 101, 106-108, 112-113 are rejected under 35 U.S.C. 102(b) as being anticipated by Barclay (US Patent 5698244).

Barclay is drawn to, as the title suggests, raising animals having high concentrations of Omega-3 fatty acids as shown at col. 2 and col. 4, which includes the fatty acids claimed at instant claim 82, by feeding harvested biomass from the genus

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Thraustochytrium (col. 3, line 14). See col. 5, line 5, lines 15, 20-24. Since Barclay teaches feeding the biomass to fish, shrimp, etc. (see claims), then claims 85-86 are met as also claims 87-88. With respect to the feed containing carotenoid, Barclay discloses that the harvested biomass feed also contains carotenoids (col. 4, lines 56-58). Barclay discloses that the oil content of the harvested cells is 25-50%. Since the biomass contains DHA or omega-3 fatty acids as well as carotenoids, and the aquacultural animals are fed by this material, then inherently claim 107

***Claim Rejections - 35 USC § 102/Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 91, 94, 96, 99 are rejected under **35 U.S.C. 102(b)** as anticipated by or, in the alternative, under **35 U.S.C. 103(a)** as obvious over Barclay.

Barclay discloses feeding elevated levels of DHA in the form of whole biomass paste, but Barclay does not disclose the DHA content of the animal or shrimp as claimed in claims 91 and 94. Since Barclay discloses the same biomass to the same animal, including shrimp, as claimed, it must be inherent that the DHA content is the same. Alternatively, the burden to find the DHA content of the aquacultured animals of Barclay (col 5, lines 19-20) is being shifted to applicant because the Office does not have the resources to obtain and measure such DHA contents to the variety of animals

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shown by Barclay and/or animals encompassed by claim 91. Similarly, to extract the fat of the aquacultured fish of Barclay as in claim 96 and measure the DHA content to be more than about 5% cannot be determined by the Office based on its resources or the lack thereof and that burden is being shifted to applicant. Based on the extent of the Barclay disclosure however, as described herein above, this amount must be inherent. Similarly, to extract the fat of the aquacultured mollusk of Barclay as in claim 99 and measure the DHA content to be more than about 10% cannot be determined by the Office based on its resources or the lack thereof and that burden is being shifted to applicant. Based on the extent of the Barclay disclosure however, as described herein above, this amount must be inherent.

### ***Claim Rejections - 35 USC § 103***

3. Claims 97, 98, 100, 109-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay in view of JP 2002-253140 and JP 60110250.

Barclay discloses the “animal” as fish but does not disclose it to be a catfish, mollusk or abalone. When Barclay discloses shrimp, oyster, fish and seafood animals, it is being held that such varieties would have been obvious to one of ordinary skill in the art at the time the invention was made, barring any evidence to the contrary. Barclay does not disclose taurine, but JP 2002-253140 discloses the use of carotenoids and taurine as feed for aquaculturally raised fish (see translation “farmed fish”). It would have been obvious to include such ingredients already being used for the same purpose

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and to determine amounts suitable for the type of animal because clearly, amounts for one type would not be suitable for another, such as catfish versus mollusk. However, note that the JP patent teaches an amount of taurine that falls within the range claimed. Since claim 81 has been shown to be old and known, then to find the suitable length of time for feeding the aquaculturally raised animal so that it can be harvested would have been obvious to the practitioner. The use of carotenoids for pigmentation enhancement is well known in the art, providing motivation, while taurine provides resistance against various algae as shown by JP 60110250.

4. Claims 102-105 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barclay in view of Beudekar et al. (US Patent 6638561) and Mawson (US Patent 5453565).

Barclay discloses that the harvested biomass contains carotenoids as well as high levels of omega-3 fatty acids. Barclay does not disclose that the carotenoids are lutein, zeaxanthin or astaxanthin. However, it is common knowledge that when “carotenoids” are disclosed, it would inherently include such compounds. Furthermore, Beudekar discloses that when microbial ARA rich feeds are used for aquaculturally raised animals, carotenoids that are natural or artificial are included in the feed to improve pigment of the fish. See col. 6, lines 2-3. Mawson teaches feeding salmonid natural sources of carotenoid pigments. Since Barclay, Beudekar and Mawson all disclose that incorporation of carotenoids was already being practiced in the art for the same purpose and was used in the natural (microbial or from flowers) or artificial form,

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as shown by Breivik who teaches combining carotenoids and the same fatty acids claimed herein, that enhances growth of fish, it cannot be said that the recitation in instant claims 102-105 of amounts is innovative, because such amounts can be determined by the practitioner based on prior art disclosure and determining appropriate amounts for the same purpose shown by these references would have been within the ambit of ordinary skill.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Barclay (US Patent 6103225) is also equally available as prior art to these claims. However, Barclay has not been applied at this time. Harel et al. (Aquaculture, vol. 213, pp.347-362, 2002) also discloses the claimed subject matter but has not been applied at this time. Gladue et al. (US Patent 6372460) and Place et al. (US Patent 6261590) also teach methods of enriching fish food carotenoids and highly unsaturated fatty acids. However, these references have not been applied because of their similarity to the applied reference. These references all show that the subjectmatter of these claims. In fact, in *In re Gorman* 18USPQ 2d, 1886 the Court noted that where teachings relied upon to show obviousness were repeated in a number of references, the conclusion of obviousness was strengthened.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. Sayala, whose telephone number is (571) 272-1405. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/C. SAYALA/  
Primary Examiner, Art Unit 1781**